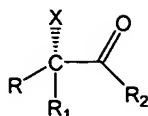
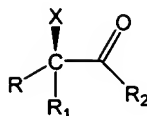


# ABSTRACT

5 A process for the catalytic asymmetric synthesis of an optically active compound of the formula (1a) or (1b)



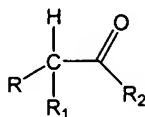
(1a)



(1b)

10 wherein R is an organic group; X is halogen; R<sub>1</sub> and R<sub>2</sub> which may be the same or different represents H, or an organic group or R<sub>1</sub> and R<sub>2</sub> may be bridged together forming part of a ring system; R and R<sub>2</sub> may be bridged together forming part of a ring system; with the proviso that R and R<sub>1</sub> are different and R<sub>2</sub>, when different from H, is attached through a carbon-carbon bond,

15 comprising the step of reacting a compound of the formula (2)



(2)

with a halogenation agent in the presence of a catalytic amount of a chiral nitrogen containing organic compound.